



U.S. Department of Energy
Energy Efficiency
and Renewable Energy



Clean Cities Alternative Fuel Price Report

September 2005





CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

WELCOME!

Welcome to the September issue of the Clean Cities Alternative Fuel Price Report, a quarterly report designed to keep you up to date on the prices of alternative fuels and conventional fuels in the U.S. This issue summarizes prices that were collected in the month of September 2005 from Clean Cities Coordinators, fuel providers, and other Clean Cities stakeholders.

METHODOLOGY

In order to collect price information for both alternative fuels and conventional fuels from areas across the country, Clean Cities Coordinators, fuel providers, DOE Regional Offices, and other key stakeholders were contacted to request that they provide prices for fuels in their area on a voluntary basis. Prices were collected on all major alternative fuels currently in widespread use (natural gas, propane, biodiesel, and ethanol), as well as prices for conventional fuels at stations that also sell alternative fuels (or stations nearby). Prices were collected from public and private refueling stations throughout the country, and were collected between September 1, 2005 and September 30, 2005. Prices were then averaged in order to determine regional price trends by fuel and variability in fuel price within regions (and among regions). Prices in this report are grouped by U.S. areas as defined by the Petroleum Administration for Defense Districts (PADD): the districts are illustrated in the map to the right.



The prices collected for this report represent retail, at-the-pump sales prices for each fuel, including Federal and state motor fuel taxes. In some cases, prices were collected from government or utility refueling facilities and these taxes were not included in the reported price. In these instances, although these users are not required to pay these taxes, the taxes were added to the reported price to provide a more representative basis for comparison of fuel prices for the purpose of this report. In some cases, states may charge a flat annual fee for motor fuel taxes (especially for gaseous fuels like CNG); these fees are not considered in the prices reported in these pages.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

SUMMARY OF CURRENT REPORT INFORMATION

Overall nationwide average prices for conventional and alternative fuels are shown in Table 1. As this table illustrates, all of the alternative fuels (with the exception of biodiesel) are lower in price than conventional fuels on a per-gallon basis. CNG is about 65 cents less than gasoline on a per gallon basis, while E85 and propane are about 36 cents and 21 cents less per gallon than gasoline. Biodiesel prices for low-level blends are about the same as for regular diesel, and B20 blends are about 10 cents more per gallon than regular diesel. B99/B100 blends (essentially pure biodiesel) have a cost of about 59 cents per gallon more than regular diesel.

Table 1. Overall Average Fuel Prices, September 2005

	<i>Nationwide Average Price for Fuel</i>	<i>Units of Measurement</i>
Gasoline	\$2.77	per gallon
Diesel	\$2.81	per gallon
CNG	\$2.12	per GGE
Ethanol (E85)	\$2.41	per gallon
Propane	\$2.56	per gallon
Biodiesel (B20)	\$2.91	per gallon
Biodiesel (B2-B5)	\$2.81	per gallon
Biodiesel (B99-B100)	\$3.40	per gallon



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

GASOLINE AND DIESEL PRICES

Average prices for gasoline and diesel as collected by Clean Cities coordinators and stakeholders are illustrated in Table 2. These prices were collected from refueling stations selling both conventional fuels and alternative fuels, and from conventional fuel refueling stations near alternative fuel stations. About 150 gasoline stations and just over

Table 2. Average Gasoline and Diesel Prices by Region from Clean Cities Sources

	Regular Gasoline Information Reported by Clean Cities		Diesel Information Reported by Clean Cities	
	Average Price / Standard Deviation of Price	Approximate Number of Stations	Average Price / Standard Deviation of Price	Approximate Number of Stations
New England	\$3.03 / \$0.36	2	\$2.89 / \$0.09	4
Central Atlantic	\$3.15 / \$0.28	2	\$2.83 / \$0.18	4
Lower Atlantic	\$2.84 / \$0.06	14	\$2.85 / \$0.10	5
Midwest	\$2.74 / \$0.12	109	\$2.77 / \$0.09	74
Gulf Coast	\$2.69 / \$0.43	9	\$2.75 / \$0.40	9
Rocky Mountain	\$2.85 / \$0.05	11	\$2.95 / \$0.16	4
West Coast	\$2.95 / \$0.06	3	\$3.08 / \$0.04	6
NATIONAL AVERAGE	\$2.77 / \$0.17	150	\$2.81 / \$0.16	106

100 diesel stations are represented, with average prices for gasoline ranging from a low of \$2.69 per gallon in the Gulf Coast to a high of \$3.15 per gallon in the Central Atlantic region. Diesel prices ranged from \$2.75 in the Gulf Coast to \$3.08 on the West Coast, based on these voluntarily-provided numbers. Because prices for conventional fuels were collected from stations and regions providing alternative fuel price information, data collection was not uniform across the regions of the country. The data collection is, however, representative of refueling stations selling both alternative fuels and conventional fuels.

Table 3 illustrates average prices as provided by the DOE Energy Information Administration on its website (http://www.eia.doe.gov/oil_gas/petroleum/info_glance/petroleum.html). These prices are averages of prices from a selection of 800 retail fuel stations across the country. Note that the average nationwide price from EIA matches relatively closely with the averages from the station information collected from Clean Cities stakeholders. Given the relatively good match of averages calculated from EIA and from Clean Cities data, comparisons in this document between conventional fuel prices and alternative fuel prices will be made using prices collected from Clean Cities representatives wherever possible, as these prices are most representative of stations selling both conventional and alternative fuels.

Table 3. EIA Gasoline and Diesel Price Averages

	Gasoline Average Price from EIA, Week of 9/26/05	Diesel Average Price from EIA, Week of 9/26/05
New England	\$2.86	\$2.86
Central Atlantic	\$2.88	\$2.88
Lower Atlantic	\$2.82	\$2.78
Midwest	\$2.72	\$2.74
Gulf Coast	\$2.72	\$2.76
Rocky Mountain	\$2.86	\$2.94
West Coast	\$2.93	\$2.98
NATIONAL AVERAGE	\$2.80	\$2.80



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

COMPRESSED NATURAL GAS (RELATIVE TO GASOLINE)

Average prices for compressed natural gas for vehicle use are illustrated in Table 4, grouped by PADD. Information on prices for regular gasoline as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a

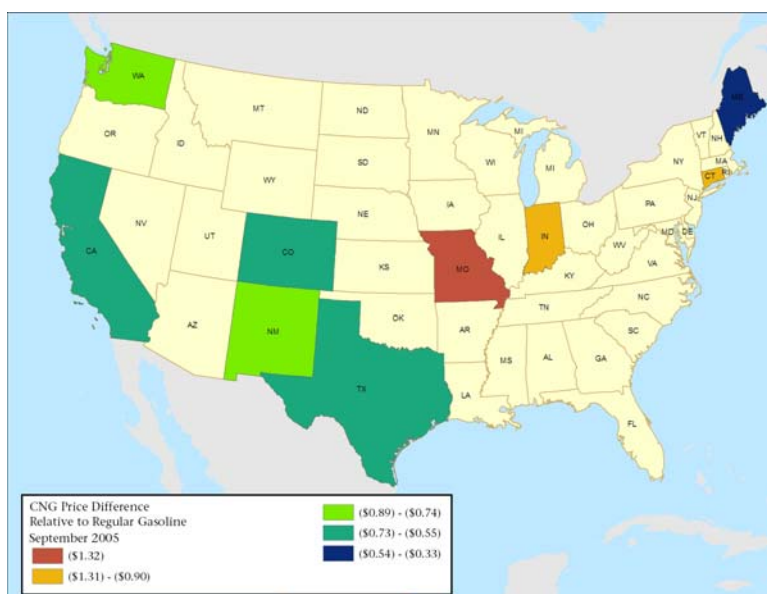
voluntary basis. About 99 CNG refueling stations are represented by this price information. As Table 4 illustrates, data collection was relatively uniform across the country.

Table 4. Compressed Natural Gas Average Prices by Region from Clean Cities Sources

	Natural Gas (CNG) Information Reported by Clean Cities (\$/gge)		Regular Gasoline Information Reported by Clean Cities (\$/gal)	
	Average Price / Standard Deviation of Price	Approximate Number of Stations	Average Price / Standard Deviation of Price	Approximate Number of Stations
New England	\$1.57 / \$0.58	7	\$3.03 / \$0.36	2
Central Atlantic	\$2.18 / \$0.04	12	\$3.15 / \$0.28	2
Lower Atlantic	\$2.61 / \$-.-	1	\$2.84 / \$0.06	14
Midwest	\$1.68 / \$0.22	3	\$2.74 / \$0.12	109
Gulf Coast	\$2.10 / \$0.04	17	\$2.69 / \$0.43	9
Rocky Mountain	\$2.14 / \$0.16	25	\$2.85 / \$0.05	11
West Coast	\$2.24 / \$0.11	34	\$2.95 / \$0.06	3
NATIONAL AVERAGE	\$2.12 / \$0.26	99	\$2.77 / \$0.17	150

As Table 4 illustrates by region, CNG has a lower price than gasoline for all regions of the country, with the largest difference (\$1.46 per gge) being in New England. On average, CNG costs about \$0.65 less than gasoline on a per gasoline gallon equivalent basis. Based on the calculated standard deviations of prices, the Central Atlantic and Gulf Coast regions had very low price variability, and New England had much higher variability (based on the small sample taken for the sampling period). Note that no standard deviation was calculated on prices for the Lower Atlantic region, as only one price point was located.

The map to the right illustrates some cost differentials by state for natural gas relative to gasoline. In this map, negative numbers represent costs for natural gas lower than costs for gasoline. States not highlighted with a color either did not have any natural gas data points in the current report or did not have comparable gasoline price averages with which to compare. Note that Missouri, Indiana, and Connecticut appear to have the most favorable CNG pricing relative to gasoline, but price structures are favorable in areas such as Texas and California (where CNG refueling is prevalent) as well.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

COMPRESSED NATURAL GAS (RELATIVE TO DIESEL)

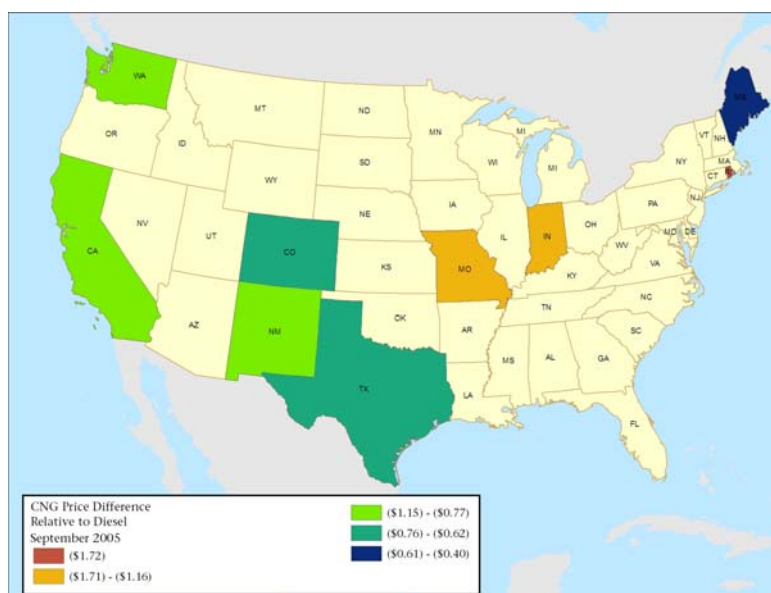
Average prices for compressed natural gas for vehicle use are illustrated in Table 5, grouped by PADD. Information on prices for conventional diesel fuel as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Note that CNG information in Table 5 is presented on a cost per diesel gallon equivalent basis, in order to compare directly with diesel prices.

Table 5. Compressed Natural Gas Average Prices by Region from Clean Cities Sources

	Natural Gas (CNG) Information Reported by Clean Cities (\$/gge)		Diesel Information Reported by Clean Cities (\$/gal)	
	Average Price / Standard Deviation of Price	Approximate Number of Stations	Average Price / Standard Deviation of Price	Approximate Number of Stations
New England	\$1.75 / \$0.65	7	\$2.89 / \$0.09	4
Central Atlantic	\$2.43 / \$0.04	12	\$2.83 / \$0.18	4
Lower Atlantic	\$2.91 / \$-.-	1	\$2.85 / \$0.10	5
Midwest	\$1.87 / \$0.25	3	\$2.77 / \$0.09	74
Gulf Coast	\$2.34 / \$0.04	17	\$2.75 / \$0.40	9
Rocky Mountain	\$2.39 / \$0.18	25	\$2.95 / \$0.16	4
West Coast	\$2.50 / \$0.12	34	\$3.08 / \$0.04	6
NATIONAL AVERAGE	\$2.36 / \$0.29	99	\$2.81 / \$0.16	106

As Table 5 illustrates by region, CNG has a lower price than diesel for all regions of the country except the Lower Atlantic region, with the largest difference (\$1.32 per gge) being in New England. (The Lower Atlantic region only had one CNG data point, however.) On average, CNG costs about \$0.45 less than diesel on a per diesel gallon equivalent basis. Based on standard deviation calculations, CNG appears to have had slightly more variability in price over the September 2005 time period relative to diesel fuel.

The map to the right illustrates some cost differentials by state for natural gas relative to gasoline. In this map, negative numbers represent costs for natural gas lower than costs for gasoline. States not highlighted with a color either did not have any natural gas data points in the current report or did not have comparable gasoline price averages with which to compare. Rhode Island, Indiana, and Missouri have the most favorable costs for natural gas relative to diesel, with California and Texas (states with good density of refueling) also have good price differentials relative to diesel fuel.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

ETHANOL (E85)

Average prices for ethanol in an 85% blend with 15% gasoline (E85) are illustrated in Table 6, grouped by PADD. Information on prices for regular gasoline as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and

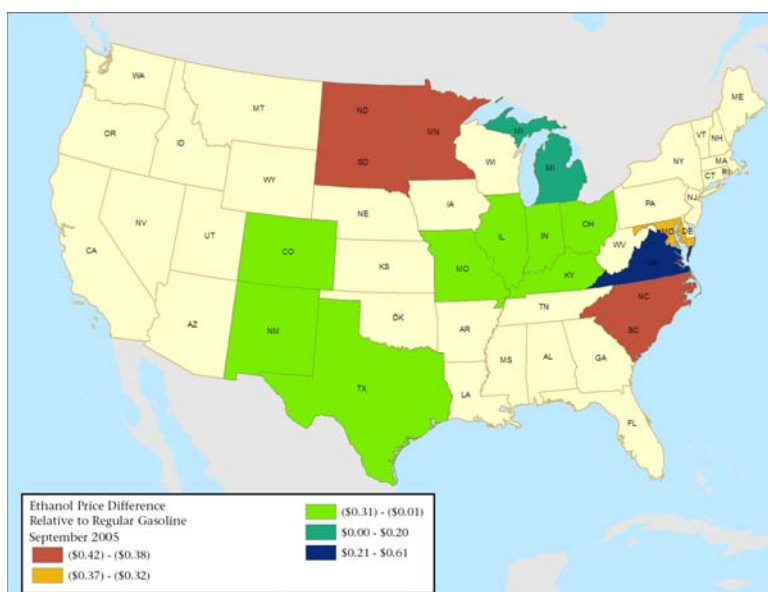
other stakeholders on a voluntary basis. About 139 ethanol refueling stations were represented by this data collection effort. Data collection was not uniform across regions of the country, but as the majority of operational ethanol stations are in the Midwest, data collection mirrored the density of refueling.

Table 6. Ethanol (E85) Average Prices by Region from Clean Cities Sources

	Ethanol (E85) Information Reported by Clean Cities (\$ per gal)		Regular Gasoline Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Approximate Number of Stations	Average Price / Standard Deviation of Price	Approximate Number of Stations
New England	--	--	\$3.03 / \$0.36	2
Central Atlantic	\$2.83 / \$0.22	2	\$3.15 / \$0.28	2
Lower Atlantic	\$2.50 / \$0.27	15	\$2.84 / \$0.06	14
Midwest	\$2.36 / \$0.26	110	\$2.74 / \$0.12	109
Gulf Coast	\$2.70 / \$0.22	3	\$2.69 / \$0.43	9
Rocky Mountain	\$2.69 / \$0.23	9	\$2.85 / \$0.05	11
West Coast	--	--	\$2.95 / \$0.06	3
NATIONAL AVERAGE	\$2.41 / \$0.28	139	\$2.77 / \$0.17	150

Note that E85 has a lower average price than regular gasoline in all regions save for the Gulf Coast region (see Table 6). On average, E85 is about 36 cents lower in price than regular gasoline on a per-gallon basis, with the largest average differential (38 cents) being found in the Midwest. Based on the calculated standard deviations in this set of E85 price information, it can be seen that price variability was relatively uniform across the country for E85 during September 2005, but was somewhat larger than the price variability for gasoline.

The map to the right illustrates some cost differentials between E85 and regular gasoline by state. In this map, negative numbers represent costs for E85 lower than for gasoline, and positive numbers represent costs for E85 higher than gasoline. States not highlighted with a color either did not have any E85 data points in the current report or did not have comparable gasoline price averages with which to compare. Note that Minnesota, the Dakotas, and the Carolinas have the largest cost savings for E85 relative to gasoline (on a per gallon basis). Somewhat smaller cost savings can be found in the lower Midwest: E85 costs are higher than gasoline for Michigan and Virginia, but this is based on a relatively small sample of E85 prices in these states.





CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

PROPANE

Average prices for propane are illustrated in Table 7, grouped by PADD. Information on prices for regular gasoline as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. A

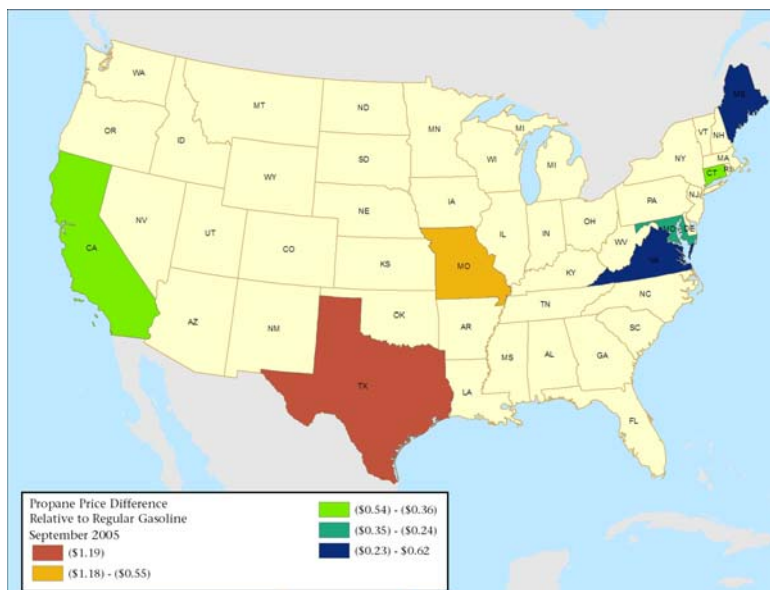
total of about 46 propane refueling stations were represented in this data. Data collection was relatively uniform across the country, but at a lower total number of data points than ethanol or CNG.

Table 7. Propane Average Prices by Region from Clean Cities Sources

	Propane Information Reported by Clean Cities (\$ per gal)		Regular Gasoline Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Approximate Number of Stations	Average Price / Standard Deviation of Price	Approximate Number of Stations
New England	\$2.91 / \$0.36	11	\$3.03 / \$0.36	2
Central Atlantic	\$2.84 / \$0.60	8	\$3.15 / \$0.28	2
Lower Atlantic	\$2.65 / \$0.78	13	\$2.84 / \$0.06	14
Midwest	\$2.44 / \$0.78	2	\$2.74 / \$0.12	109
Gulf Coast	\$1.46 / \$0.17	6	\$2.69 / \$0.43	9
Rocky Mountain	\$2.28 / \$-.-	1	\$2.85 / \$0.05	11
West Coast	\$2.54 / \$0.39	5	\$2.95 / \$0.06	3
NATIONAL AVERAGE	\$2.56 / \$0.70	46	\$2.77 / \$0.17	150

As Table 7 illustrates regionally, propane has a lower price than gasoline on a per-gallon basis throughout the U.S., based on these collected prices (about 21 cents per gallon on average nationwide). The Gulf Coast region has the largest price differential between propane and gasoline, at \$1.23 per gallon. Based on calculations of standard deviation in prices, it can be seen that propane prices for vehicle use seems to have varied more than gasoline prices during this sampling period (no standard deviation can be calculated for the Rocky Mountain region, as only one price point was collected).

The map to the right illustrates some cost differentials between propane and regular gasoline on a per-gallon basis. In this map, negative numbers represent costs for propane lower than costs for gasoline, and positive numbers represent propane prices higher than gasoline. States not highlighted with a color either did not have any propane data points in the current report or did not have comparable gasoline price averages with which to compare. Texas has favorable prices for propane, as do Missouri and California.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

BIODIESEL BLENDS: B20

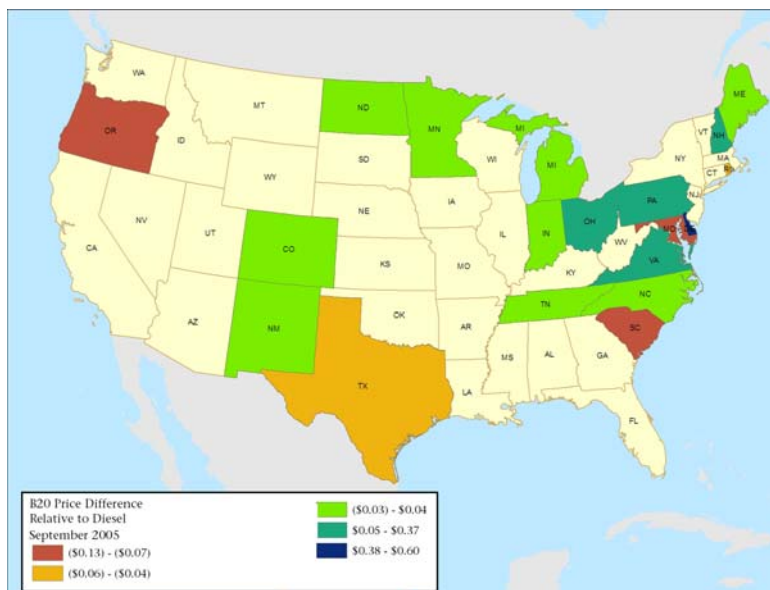
Average prices for biodiesel in a 20% blend with 80% diesel (B20) are illustrated in Table 8, grouped by PADD. Information on prices for regular diesel as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Prices were obtained from about 40 B20 refueling sites across the country, with relatively uniform distribution across regions.

Table 8. Biodiesel (B20) Average Prices by Region from Clean Cities Sources

	Biodiesel (B20) Information Reported by Clean Cities (\$ per gal)		Diesel Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Approximate Number of Stations	Average Price / Standard Deviation of Price	Approximate Number of Stations
New England	\$2.93 / \$0.06	7	\$2.89 / \$0.09	4
Central Atlantic	\$3.07 / \$0.28	3	\$2.83 / \$0.18	4
Lower Atlantic	\$2.92 / \$0.19	8	\$2.85 / \$0.10	5
Midwest	\$2.84 / \$0.14	14	\$2.77 / \$0.09	74
Gulf Coast	\$2.93 / \$0.22	3	\$2.75 / \$0.40	9
Rocky Mountain	\$2.94 / \$0.06	2	\$2.95 / \$0.16	4
West Coast	\$2.99 / \$0.16	3	\$3.08 / \$0.04	6
NATIONAL AVERAGE	\$2.91 / \$0.16	40	\$2.81 / \$0.16	106

As Table 8 illustrates regionally, biodiesel in a B20 blend has a higher price per gallon in all areas of the country on average relative to conventional diesel fuel, with the exception of the Rocky Mountain region, where the average price for B20 is about the same as for conventional diesel. Based on calculations of standard deviation on B20 prices, variability in B20 prices was fairly consistent across the country for September 2005, and was relatively close to the variability in price of conventional diesel by region (as would probably be expected, given that 80% of the B20 blend is regular diesel fuel).

The map to the right illustrates some cost differentials between B20 and diesel on a per-gallon basis. In this map, negative numbers represent costs for B20 lower than costs for diesel, and positive numbers represent B20 prices higher than diesel. States not highlighted with a color either did not have any B20 data points in the current report or did not have comparable diesel price averages with which to compare. Note that, although B20 prices are slightly higher on average by region (see Table 8), some states (Oregon and Texas) have B20 prices slightly lower than diesel fuel.



CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

BIODIESEL BLENDS: LOW-LEVEL (B2-B5)

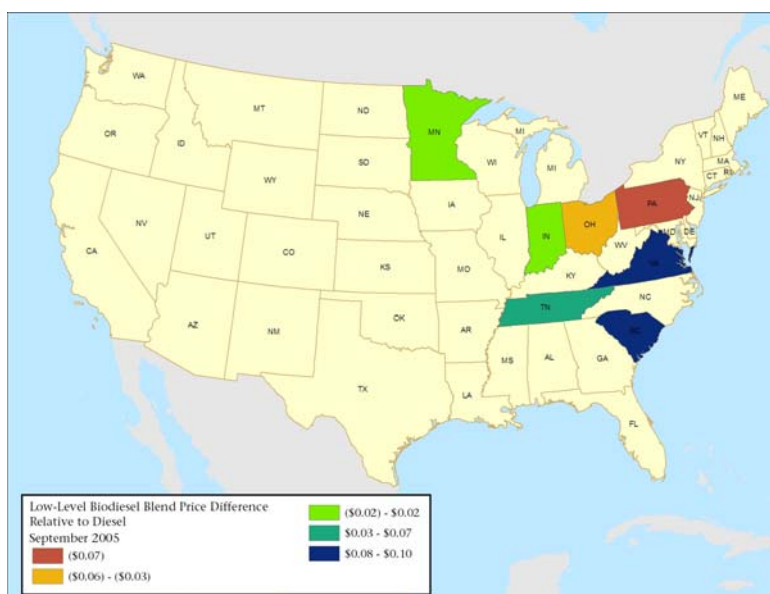
Average prices for biodiesel in lower-level blends (2-5% biodiesel in diesel fuel) are illustrated in Table 9, grouped by PADD. Information on prices for regular diesel as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Prices were obtained from about 24 refueling sites offering low-level biodiesel blends across the country, with most of the data points from the Midwest.

Table 9. Biodiesel (B2-B5) Average Prices by Region from Clean Cities Sources

	Biodiesel (B2-B5) Information Reported by Clean Cities (\$ per gal)		Diesel Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Approximate Number of Stations	Average Price / Standard Deviation of Price	Approximate Number of Stations
New England	--	--	\$2.89 / \$0.09	4
Central Atlantic	\$2.79 / \$--	1	\$2.83 / \$0.18	4
Lower Atlantic	\$2.88 / \$0.09	6	\$2.85 / \$0.10	5
Midwest	\$2.78 / \$0.09	17	\$2.77 / \$0.09	74
Gulf Coast	--	--	\$2.75 / \$0.40	9
Rocky Mountain	--	--	\$2.95 / \$0.16	4
West Coast	--	--	\$3.08 / \$0.04	6
NATIONAL AVERAGE	\$2.81 / \$0.10	24	\$2.81 / \$0.16	106

As Table 9 illustrates regionally, average prices for low-level blends of biodiesel are approximately the same as average diesel prices, with similar variability over the September 2005 time period (based on standard deviation calculations). Overall, average price for low-level biodiesel blends is the same as for regular diesel fuel on a nationwide basis. This close tracking with diesel price would be expected, given the small percentage of biodiesel in these blends: the regular diesel price would have much more impact on the overall price of the blend than the biodiesel price.

The map to the right illustrates some cost differentials between low-level biodiesel blends and regular diesel on a per-gallon basis. In this map, negative numbers represent costs for these blends that are lower than costs for diesel, and positive numbers represent prices for these blends that are higher than diesel. States not highlighted with a color either did not have any low-level biodiesel blend data points in the current report or did not have comparable diesel price averages with which to compare. All of the states shown have prices for low-level biodiesel blends that are close to the price for diesel fuel in these states.





CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

BIODIESEL BLENDS: B100/B99

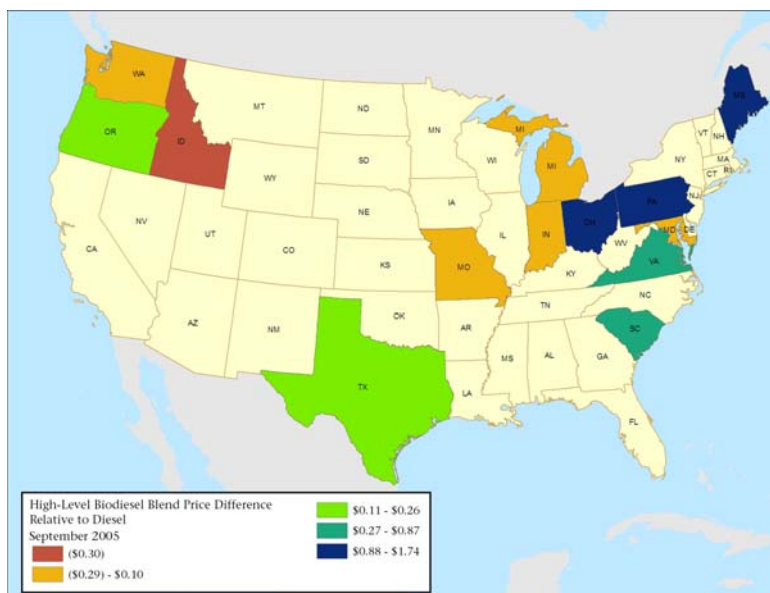
Average prices for high-level blends of biodiesel (99% or 100% biodiesel with diesel fuel) are illustrated in Table 10, grouped by PADD. Information on prices for regular diesel as provided by Clean Cities representatives is also shown. These prices were collected from across the country from Clean Cities Coordinators, fuel providers, and other stakeholders on a voluntary basis. Prices were collected from about 23 refueling stations offering B99/B100 for sale across the country.

Table 10. Biodiesel (B99-B100) Average Prices by Region from Clean Cities Sources

	Biodiesel (B99-B100) Information Reported by Clean Cities (\$ per gal)		Diesel Information Reported by Clean Cities (\$ per gal)	
	Average Price / Standard Deviation of Price	Approximate Number of Stations	Average Price / Standard Deviation of Price	Approximate Number of Stations
New England	\$3.82 / \$0.50	3	\$2.89 / \$0.09	4
Central Atlantic	\$3.78 / \$0.71	3	\$2.83 / \$0.18	4
Lower Atlantic	\$3.53 / \$0.18	2	\$2.85 / \$0.10	5
Midwest	\$3.30 / \$0.85	4	\$2.77 / \$0.09	74
Gulf Coast	\$2.95 / \$----	1	\$2.75 / \$0.40	9
Rocky Mountain	\$2.89 / \$----	1	\$2.95 / \$0.16	4
West Coast	\$3.25 / \$0.21	9	\$3.08 / \$0.04	6
NATIONAL AVERAGE	\$3.40 / \$0.51	23	\$2.81 / \$0.16	106

As Table 10 illustrates regionally, the cost of B99/B100 is higher than the cost of diesel fuel per gallon in all regions save the Rocky Mountain region. On average across the nation, B99/B100 is about 59 cents per gallon higher than regular diesel. Based on standard deviation calculations on these price points, it appears that prices for B99/B100 varied more widely in the September 2005 time period than regular diesel, with the highest spread in prices being in the Midwest and Central Atlantic regions.

The map to the right illustrates some cost differentials between high-level biodiesel blends and regular diesel on a per-gallon basis. In this map, negative numbers represent costs for these blends that are lower than costs for diesel, and positive numbers represent prices for these blends that are higher than diesel. States not highlighted with a color either did not have any high-level biodiesel blend data points in the current report or did not have comparable diesel price averages with which to compare. In most states, prices for B99/B100 were more than for diesel on a per gallon basis, with the exception of Idaho, where a B100 gallon was about 30 cents less than a diesel gallon (this was a very small sampling of stations in the state, however).





CLEAN CITIES ALTERNATIVE FUEL PRICE REPORT

SEPTEMBER 2005

WOULD YOU LIKE TO PARTICIPATE?

If you would like to provide prices for alternative fuels in your region and be part of the data collection effort for this report, please contact:

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